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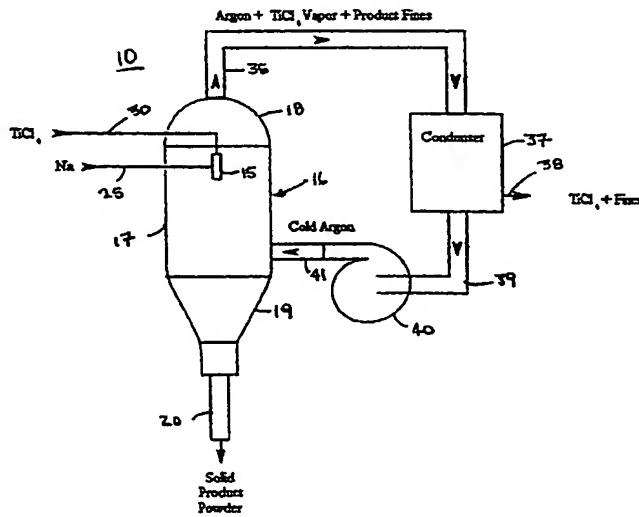
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(54) Title: SYSTEM AND METHOD OF PRODUCING METALS AND ALLOYS



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(57) **Abstract:** A system for producing an elemental material or an alloy thereof from a halide of the elemental material or halide mixtures comprising a reactor for introducing the vapor halide of an elemental material or halide mixtures thereof into a liquid phase of a reducing metal of an alkali metal or alkaline earth metal or mixtures thereof present in less than or equal to the amount needed to reduce the halide vapor to the elemental material or alloy resulting in an exothermic reaction between the vapor halide and the liquid reducing metal producing particulate elemental material or alloy thereof and particulate halide salt of the reducing metal, a chamber wherein the reaction products are cooled so that substantially all the particulate elemental material or alloy remains unsintered, and a separator for separating the particulate metal or alloy reaction products from the particulate salt.